

Key to **Osmia** females known from eastern North America (east of 100<sup>th</sup> meridian)

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1. Integument brilliant metallic green with blue or purple tints, Chrysidid-like; scopa blackish; most hairs of galea (@ 40x) hamate; rare species from midwestern prairies and Ozark glades.....**illinoensis** Robertson

*Note: O. ribifloris* Cockerell, a species of the west and southwest US, superficially resembles *illinoensis* in the brilliant green to blue or purplish integument, but can be separated from *O. illinoensis* by the longer malar space which possesses an elongate depression, and the mandibles (sinus between basal and medial teeth entire and cutting surface complete in *ribifloris*, concave and incomplete in *illinoensis*). *O. ribifloris* has recently been used in the southeast and northeast US for blueberry pollination.

Integument metallic green to blue but never brilliantly so, occasionally black (with or without metallic sheen); other characters variable.....2

2. Apico-lateral margins of clypeus each with a stout horn-like projection; medium to large bees with pale scopae and dull, weakly metallic green integument; introduced Old World species .....3

Apico-lateral margins of clypeus unmodified (without stout projections), though apico-medial margin of clypeus may be modified with projections; scopae color variable, often black; integument often blueish.....4

3. Clypeus almost entirely smooth, shiny and impunctate, contrasting with punctate surface of supraclypeal area; apico-medial margin of clypeus with a small flattened process, margin often entire in small individuals..... **taurus** Smith

Clypeus with basal half finely, densely punctate, similar to supraclypeal area; apico-medial margin of clypeus with a small, pointed process.....**cornifrons** (Radoszkowski)

4. Clypeal margin apico-medially with one to several stout teeth or projections; medium to large bluish bees with blackish scopae; oligoleges of Asteraceae; ENA south of coniferous/boreal forest region.....5

Clypeal margin apico-medially lacking stout teeth or projections (but may be emarginate, incised, carinate, or enlarged).....6

5. Clypeus apico-medially with two or three stout teeth; widespread in eastern US south of boreal/coniferous forest region ..... **texana** Cresson

Clypeus apico-medially with a somewhat spatulate process, this emarginate medially, angulate laterally; southeastern US.....**chalybea** Smith

6. Mandible extremely modified, with a strong triangular process projecting from upper basal margin of mandible; apical half of clypeus hairless, shiny, impunctate, with a strong medial carina (may be obscured when mandibles are closed); scopa pale; oligolege of Asteraceae; throughout much of ENA south of boreal/coniferous forest region.....**georgica** Cresson

Mandible without any projection along upper margin; clypeus without a medial carina, and clypeus punctate throughout except for the usually narrow impunctate apical margin.....7

7. Clypeal margin apico-medially with a deep, semicircular to quadrate emargination; malar space with a lobate process or projection; integument blue, scopa dark; widespread in ENA except far north.....**lignaria** Say

Clypeal margin apically usually entire, occasionally very shallowly and broadly emarginate, or with an extremely small apico-medial notch.....8

8. Clypeus with apical margin (above clypeal hair tufts) enlarged, thickened, and rounded, narrowly smooth and shiny; large to very large species.....9

Clypeus with apical margin (above clypeal hair tufts) bevelled and sharp-edged, not rounded, thickened or enlarged; size variable, often small.....10

9. Hind basitarsus parallel-sided; scutum shiny between punctures; found throughout ENA south into Ozarks, Appalachians.....**bucephala** Cresson

Hind basitarsus broadened medially, narrowed basally, not parallel-sided, scutum dull between the dense, fine punctures; not occurring south of boreal/coniferous forest region ..... **nigriventris** (Zetterstedt)

10. Ventral margin of mandible angulate or toothed medially, best viewed from beneath (can be difficult to recognize if mandibles are closed); mandibular carinae parallel (*inermis*, *inspergens*, *subaustralis*).....11

Ventral margin of mandible without a pronounced angle or tooth anywhere along its length, mandibular carinae variable (either parallel or converging onto apical tooth) .....13

11. Integument black, with few or no metallic tints; scopa blackish; anterior face of T1 tessellate; not occurring south of boreal/coniferous forest region .....**inermis** (Zetterstedt)

Integument metallic blue or greenish, anterior face of T1 variable.....12

12. Mandible with medial tooth about equidistant between basal and apical teeth, slightly closer to apical tooth; sinus between basal and medial teeth concave; scopa pale; anterior face of T1 shiny, mostly unsculptured; clypeus apically with a thick “brush” of brownish hairs unlike hairs elsewhere on face; ENA south to Ozarks, Appalachians  
.....**inspergens** Lovell and Cockerell

Mandible with medial tooth much closer to apical tooth than to basal tooth; sinus between basal and medial teeth not concave but straight, usually with a raised cutting edge; scopa blackish; anterior face of T1 tessellate; clypeus apically produced and broadly emarginate; oligolege of Asteraceae; apparently restricted (in ENA) to the Upper Great Lakes Region  
.....**subaustralis** Cockerell

13. Scopal hairs on ST2 - ST4 light-colored (pale white to amber).....14  
(*conjuncta*, *subfasciata*, *distincta*, *cordata*, *sandhouseae*, *pumila*, *albiventris*)

Scopal hairs on ST2 - ST4 much darker, brown to black.....21  
(*hyperborea*, *svensonni*, *coerulescens*, *kenoyeri*, *simillima*, *felti*, *tersula*, *proxima*, *collinsiae*, *virga*, *atriventris*, *michiganensis*, *sp. C*)

14. Hind coxa with strong longitudinal carina along inner ventral angle; narrow sulcus present between apical lamella (i.e., the “shelf”) of T6 and body of T6; tergal fasciae conspicuous, in part; ENA south of boreal/coniferous forest region. ....15

Hind coxa ecarinate; no sulcus present between T6 lamella and body of tergite; fasciae sometimes present but usually weak.....16

15. A pair of small tubercles (these slightly smaller than the ocelli) lying between and just above the antennal sockets; anterior face of T1 tessellate, provided with long pale hairs; widespread in ENA south of boreal/coniferous forest.....**conjuncta** (Cresson)

No tubercles present between and just above antennal sockets, though tiny bumps can occasionally be distinguished; anterior face of T1 shiny, with short pale hairs; southern tier of US states north along coast to NJ (??).....**subfasciata** Cresson

16. Mandibular carinae converging apically, diverging basally, mandibles essentially quadrate; tergites densely punctate throughout, lacking any impunctate margins; SE US  
.....**sandhouseae** Mitchell

Mandibular carinae parallel; mandible broadened apically, constricted to some degree between base and apex; terga usually but not always with impunctate margins.....17

17. Clypeal margin very broadly, shallowly emarginate, hairs on ocellar area usually long and proclinate; ocellar area usually “stained” purplish-black; primary oligolege of *Penstemon*, occasionally found on Fabaceae; ENA south of boreal/coniferous forest region  
.....**distincta** Cresson
- Clypeal margin entire or with a small, narrow notch medially, never broadly emarginate; hairs on clypeus and face erect, not proclinate.....18
18. Scutal punctures contiguous or nearly so, interspaces very narrow to absent.....19
- Scutal punctures more separated, interspaces (at least in central area of scutum) as wide or wider than puncture diameter.....20
19. Punctures of scutum distinct and well-defined, even though very close together; marginal hairs of galea as long as apical joint of maxillary palp; fringe hairs of forebasitarsi short, at most half the length of the segment; forebasitarsi length x width about 3:1; apex of malus rounded or blunt, not acute or spine-like; T1 pubescence thin, pale, similar to that on T2-T5; central and southern US.....**cordata** Robertson
- Punctures of scutum very crowded, over much of scutum so close together as to appear irregular and indistinct, creating a roughened, rather than punctate surface; marginal hairs of galea short, much shorter than apical joint of maxillary palp; fringe hairs of forebasitarsi long, some almost as long as forebasitarsi; forebasitarsi longer, length x width almost 4:1; apex of malus produced, acute; surface of T1 laterally with considerable erect white pubescence, very unlike pubescence of remaining terga; apparently confined to remnant habitats in Highlands Co., FL..... **undescribed sp. from Archbold Biol. Sta., FL**
20. Medial portion of metanotum horizontally-oriented, almost on same plane as scutum and scutellum, and visible in dorsal view; punctures on upper anterior portion of pleura separated by about one puncture diameter, punctures becoming much more dense, almost confluent, on mid- to lower portions of pleura; throughout ENA south of boreal/coniferous forest region.....**pumila** Cresson
- Medial portion of metanotum vertically-oriented, mostly perpendicular to plane of scutum and scutellum, hardly visible in dorsal view; pleural punctures mostly of similar spacing throughout pleura; found in boreal/coniferous forest region south into coniferous/deciduous transition zone.....**albiventris** Cresson

21. Mandibular carinae converging apically, diverging basally; mandible nearly quadrate  
.....1.....22  
(includes *atriventris*, *felti*, *hyperborea*, *virga*)
- Mandibular carinae parallel; mandible variable, but often broadened apically, and  
constricted to some degree between base and apex.....25  
(includes *coerulescens*, *collinsiae*, *kenoyeri*, *michiganensis*, *sp. C*, *proxima*, *simillima*,  
*svensonni*, *tersula*)
22. Integument black, dull, non-metallic; pubescence of thorax white; probable oligolege of  
Ericaceae; small black species not found south of boreal/coniferous forest region  
.....**hyperborea** Tkalcu
- Integument dull metallic greenish or blueish.....23
23. Lower portion of gena and postgena with long, dark, strongly curled hairs; malus  
terminating in a long, stout spine; robust, dark blue species; **distribution?**...**felti** Cockerell
- Hairs of gena and postgena mostly straight, if some slightly curled these are always pale;  
malar spine small if present; smaller, less robust forms.....24
24. Forebasitarsi long and narrow, LxW about 5:1, its apex ventrally with a single row of dark  
spine-like setae, these noticeably larger, stouter and more curved than adjacent setae, these  
modified setae also present on the following two foretarsal segments; clypeus with  
punctures small, dense, interspaces somewhat dull; oligolege of Ericaceae;  
boreal/coniferous forest region, south to coniferous/deciduous transition zone along  
southern Great Lakes.....**virga** Sandhouse
- Forebasitarsi shorter, LxW about 4:1; setae at base of forebasitarsus (and following  
segments) not differentiated, not conspicuously enlarged or darkened, not spine-like; clypeal  
punctures coarser, interspaces shiny; polylege; throughout ENA except far south (??)  
.....**atriventris** Cresson
25. Integument black, non-metallic; pubescence dark brown throughout except white on vertex,  
scutum, scutellum, and T1 dorsally; boreal/coniferous forest region  
.....**svensonni** Tkalcu
- Integument largely dull metallic green to blue.....26

26. Clypeal margin with two pair of hair tufts; space between basal and medial teeth horizontal, not concave; propodeal triangle predominantly shiny, lacking extensive sculpture or tessellation; **present-day distribution?**.....**caerulescens** (Linnaeus)

Clypeal margin with one pair of hair tufts; space between basal and medial teeth concave to some degree; propodeal triangle largely dull, tessellate, or otherwise sculptured, any shiny areas are peripheral and not extensive.....27

27. Forebasitarsus short, broad (LxW about 3:1) and somewhat flattened, abundantly provided with light-colored/light-brown curly hairs; pubescence of thorax mostly pale; boreal/coniferous forest region south into deciduous/coniferous transition .....**simillima** Smith

Forebasitarsus longer, narrower, not flattened, and hairs not curly; pubescence of thorax variable, often dark brown or blackish on pleura.....28

28. Mid-basitarsus short and broad (LxW about 2.5:1 or less); T2-T5 with abundant, long black or dark brown hairs plainly visible in dorsal view; hind femur with a small, narrow, ventrally-directed process at articulation with tibia; boreal/coniferous forest region, probably arenophilous.....**kenoyeri** Cockerell

Mid-basitarsus longer, LxW at least 3:1, and usually 4:1; pubescence of T2-T5 variable, but if dark brown or black then quite short, never long and hardly visible in dorsal view...29

29. Mandible essentially quadrate, not broadened apically and hardly constricted between base and apex; apical tooth not much larger or longer than medial tooth; metanotum usually with distinct punctures.....30

Mandible distinctly broadened apically and somewhat constricted between base and apex; apical tooth usually larger and longer than other teeth; metanotum often tessellate, with few if any punctures.....31

30. Apical rims of T1-T3 sharply defined, narrow, shining; galeal hairs short, pale; central and southern US south of boreal/coniferous forest region..... **collinsiae** Robertson

T1-T3 with apical rims broader, not sharply defined; galeal hairs longer, brown; boreal/coniferous forest region south into deciduous/coniferous transition.**proxima** Cresson

31. Hypostomal tooth present and conspicuous near angle of hypostome; clypeus almost always with small triangular notch apicomediaally; pubescence on clypeus and frons mostly dark brown; boreal/coniferous forest region south into deciduous/coniferous transition.....  
.....**michiganensis** Mitchell

Hypostomal tooth absent at or near angle of hypostome AND clypeal margin entire.....32

32. Clypeal punctures dense (nearly contiguous), and relatively coarse; boreal/coniferous forest region..... **tersula** Cockerell.

Clypeal punctures finer, slightly separated; known from Michigan and North Carolina...**sp. C**